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ABSTRACT

The Department of Geography of the University of Colorado offers as an integral part of its graduate program, systematic training in geographic education in order to improve the preparation of its graduates for careers as college geography teachers. In order to present a systematic component intended to increase the teaching competency of students who plan college teaching careers, project staff state roles and functions that graduates of the program might be expected to fulfill, outline training dimensions needed to prepare students to fill these roles and functions, and suggest the expected yeilds of the program. The program activities, ranging from formal courses to occassional colloquia, are designed to develop varying levels of theoretical knowledge and practical skills, to offer the student opportunities to experience greater responsibility and autonomy, and to reflect a philosophy of individualization. Geographic education programs offer theoretical and practical experiences to students that prepare them in all six training dimensions: content mastery, course design, management of learning skills, interpersonal communications, self-evaluation, and professionalization/socialization.
(Author/SJM)

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July 1, 1973

The University of Colorado Department of Geography Graduate Program in Geographic Education*

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1. INTRODUCTION

The Department of Geography of the University of Colorado offers as an integral part of its graduate program, systematic training in geographic education in order to improve the preparation of its graduates for careers as college geography teachers. Geographic education is viewed here as a specialty in which a student may attain varying levels of theoretical and practical knowledge, skill, and experience pertaining to the processes of teaching and learning geography. Systematic preparation for college geography teaching is essential, especially because a large number of geography Ph.D.s become teachers at the college level. It is commonly known, however, that typical graduate training so stresses systematic mastery of the content of the discipline that relatively little emphasis is given to systematic mastery of theory and practice in teaching, the process that occupies most of the graduates' subsequent professional time. Redressing this imbalance is long overdue. Without denying that a few excellent teachers have emerged from the typical system of graduate training, it is assumed here that formal and systematic attention to teacher preparation in graduate school would increase the probability that graduates will become excellent teachers. As geographers we presume to address geographic problems scientifically. We also need to learn to apply our analytical skills to the problem of systematic teacher preparation because we see the responsibility of teacher training resting directly on us. It is clear that we have much to learn about this problem and,

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as with the geographic problems with which we commonly deal, we know we must expect trial and error before we arrive at a workable design. Thus, we present this program design as our initial hypothesis, our first approximation to a solution.

2. PROJECT OBJECTIVES

We present a systematic component intended to increase the teaching competency of our students who plan college teaching careers. Beyond a standard level of preparation, our design furthermore provides students with opportunities for specializing at various levels in geographic education (GE). These higher levels of specialization will involve only a small percentage of our graduate students; it is expected that these students, as they reach advanced standing toward the Ph.D., will serve as resource persons for our own program, and that as specialists after graduation they will meet other departments' needs for providing systematic teacher preparation. A program such as this is very complex and its objectives can be stated on several levels. We first state what roles and functions graduates of the program might be expected to fulfill. Also, we outline what training dimensions are needed to prepare students to fill these roles and functions. We also project the approximate numbers of students to be involved in the program and the degrees of their involvement. Lastly, we suggest as broadly as possible the expected yields of this program. While we thus abstractly separate project objectives, they are in reality intricately linked.

a. Training for Diverse Roles and Functions

The Colorado geography Ph.D. student is required to offer three specialties, or sub-fields, on which to be examined in his Ph.D. comprehensives. After graduation, the new Ph.D. presumably goes on to elaborate one or more of these specialties as a professional geographer. In the past few years an estimated 70% to 80% of Ph.D.s in geography, finding careers in college teaching, became academic geographers, while the remainder presumably did professional geographic work without teaching. (There are indications that this percentage may decrease in the future, owing to the recent reversal of the 1950s and 1960s expansionist trends of colleges and universities.) For any

given sub-field or specialty of a discipline, one can identify types of persons fitting a structure of levels of expertise or leadership. There are those who (1) have a basic familiarity with the specialty, either through one or two graduate courses or through less formal training; (2) those who have sufficient interest and special training to teach courses and do some research in the specialty; and (3) those recognized leaders in the specialty. We assume that the higher the level of graduate training achieved in the specialty, the higher the probability of achieving leadership in that specialty.

Using the specialty of GE we can apply the above model in response to the question: what are the roles and functions for which the program in GE will be training graduate students? Thus, a standard amount of systematic teacher training is offered for all students planning careers as academic geographers. In terms of the specialty, geographic education, these students will be trained for the Type 1 role in the above model and their training is termed Level 1. Those students who expect to become college geography teachers are expected to seek Level 1 training. Levels 2 and 3 are offered to train Types 2 and 3; clearly, the numbers of students involved diminishes as the level of specialization increases. Finally, the program recognizes those graduate students who do not plan to pursue a teaching career. Figure 1 summarizes the objectives in terms of roles and functions of graduates.

Figure 1

Training Level	Roles and Functions for which Training is Designated
0	To do professional geographic work without any teaching (Type 0)
1	To be academic geographers with a standard amount of systematic training in geographic education (Type 1)
2	To be academic geographers with a specialty in GE (Type 2)
3	To be academic geographers with a leadership specialty in GE (Type 3)

b. Behavioral Dimensions of the Training

The next set of program objectives outlines the training dimensions offered to prepare students to fulfill the above-stated roles and functions. These objectives respond to the question: what is it that college geography

teachers should know and what should they be prepared to do? In March, 1972, the Department's faculty and graduate students generated a lengthy set of items in response to this question. Similar sets were developed in Kansas City at an A.A.G. workshop in April, 1972, to which the Department sent a team of three. Frank Koen has provided an inclusive categorization of these sets ("The Preparation of College Teachers," Preservice Preparation of College Biology Teachers, Publ. No. 24, Commission on Undergraduate Education in the Biological Sciences, Donald S. Dean [ed.], November, 1970, pp. 15-43). Koen's response to the question, "How might the set of activities and competencies of college teachers be categorized?" is to suggest "The Six Dimensions of College Teaching." These, identified as the broad behavioral objectives of this program, are shown in Figure 2.

Figure 2

Training Dimensions	General Behavioral Objectives
1. Content Mastery	The student will be able to demonstrate his* knowledge of the subject matter of geography at the level demanded by the Department's faculty, and will be able to articulate the relevance of the subject matter to students, self, and society.
2. Course Design	The student will demonstrate his ability to organize the subject matter, to design and plan a geography course, to establish instructional objectives, to prepare advanced organizers for these such as syllabi, etc.; and will be able to articulate supportable rationales.
3. Management of Learning Skills	The student will demonstrate his effectiveness using a variety of presentation skills and his command of a wide range and flexible repertoire of teaching strategies and will be able to articulate supportable rationales for their use.
4. Interpersonal Communications	The student will demonstrate ability in using interpersonal communications skill and will be able to articulate supportable rationales for its use.
5. Self-Evaluation	The student will demonstrate his ability to systematically evaluate his own teaching effectiveness.
6. Professionalization/ Socialization	The student will demonstrate his knowledge of institutional practices, familiarity with structures and functions of professional organizations and societies, his ability to articulate explicitly his personal educational philosophy, etc.

*here, and throughout the remainder of this document, please read "his or her" wherever "his" appears.

The program is designed to train students in all six of the above dimensions according to the principle that the depth and degree of training experience with all dimensions will increase by training levels. Relating this concept to the Department's Ph.D. program requirement of three specialties yields the following expectations of levels of commitment, involvement, and competency (Figure 3).

Figure 3

GE Training Level	Degree of Commitment and Specialization
0	Each entering graduate student will, in Geography 501, have the option of working in a 2-3 week unit in GE.
1	Approximately 2 semesters* of preparation in all 6 training dimensions with both theoretical and applied experiences. Ph.D. candidate offers 3 departmental specialties for comprehensive exam other than in GE, e.g., quantitative methods, urban geography, etc.
2	Approximately 4 semesters* of preparation in all 6 training dimensions with both theoretical and applied experiences, GE is offered as 1 of 3 specialties for Ph.D. comprehensives, but dissertation is in one of the other 2.
3	Approximately 4 to 6 semesters* of preparation in all 6 GE training dimensions with both theoretical and applied experiences. GE is offered as 1 of 3 specialties for Ph.D. comprehensives and dissertation is in GE.

* A "semester of preparation" means some but not total commitment of time on the specialty during a semester, e.g., a practicum experience, such as a TAship, might be combined during the same semester with work in other departmental specialties.

c. Approximate Student Enrollment by Training Level

A third kind of project objective is the expectation of numbers of students to be involved by training level. The following projection for Levels 0 and 1 is based on the fact that 70% to 80% of geography Ph.D.s have in the past found themselves in teaching careers as well as the presumption that graduate students will view the GE training program as an effective means for preparing themselves for teaching careers. The percentages of students shown for Levels 2 and 3 are even rougher guesses. Obviously all of these percentages might fluctuate from year to year according to a variety of factors including "market demand," the

effectiveness and reputation of the program, etc. (As noted on page 2, there are recent indications that the percentage of graduates finding careers in college teaching may be dropping.) Figure 4 is a first approximation of the expected "flow" of students through the proposed program; this flow, of course, is also a function of time such that students would normally not reach Level 3 until their second or third year of training.

d. Long-Range Goals

Finally, project objectives are stated as very broad goals of the program and are, in effect, hypothetical yields or benefits affecting students and faculty in the Department, the Department's own structure and ethos, other groups within the University, and other colleges and universities. Figure 5 views the program as both initiating change for the improvement of GE and being transformed itself by influences within and outside of the Department.

3. PROGRAM ACTIVITIES

The program activities described in this section suggest specific opportunities; the list is not meant to preclude additional activities deemed appropriate. Teaching, consulting, and evaluation responsibilities are shared in varying degrees by many faculty members. In addition, the Department's Graduate Studies Committee, composed of three faculty members and three graduate students, consults periodically with each student to see that he is making appropriate progress toward achieving the program objectives, that his training needs are being met, and to assure that his experiences will be channeled to achieve optimal teaching effectiveness. The Committee will utilize its knowledge of the needs and experiences of the individual students in the program to suggest corrections in the design and operation of the program. Furthermore, the program will seek outside, professional, program evaluation.

The program activities range from formal courses to occasional colloquia; they are intended to develop theoretical knowledge and practical skills; engagement in some pays a salary, in others academic credit will be earned, in yet others neither salary nor credit. They are designed to offer the student opportunities to experience, during his graduate training, greater responsibility and autonomy, and to be progressively rewarded as well--to allow him to

FIGURE 4

APPROXIMATE STUDENT FLOW IN GE PROGRAM

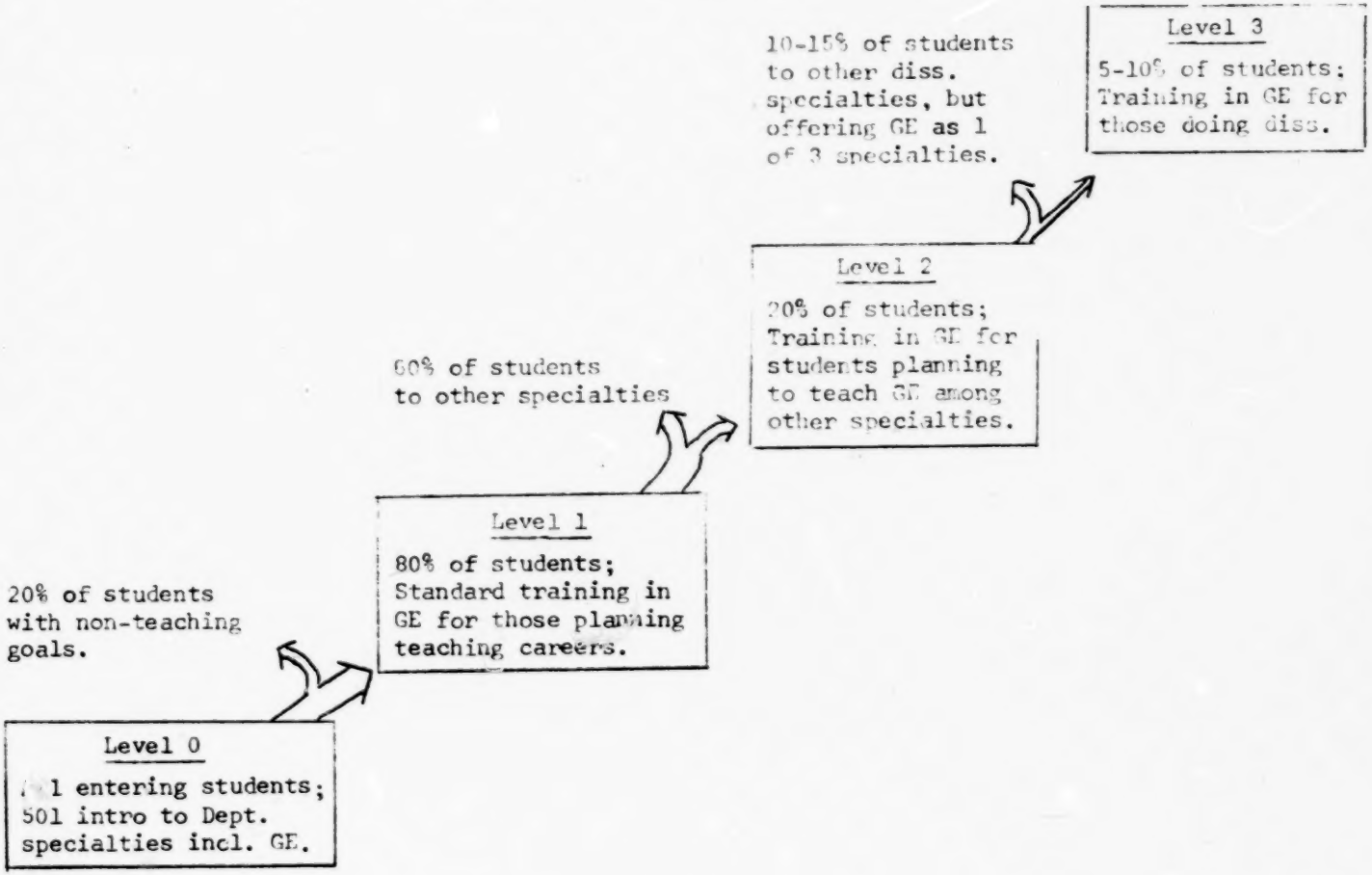
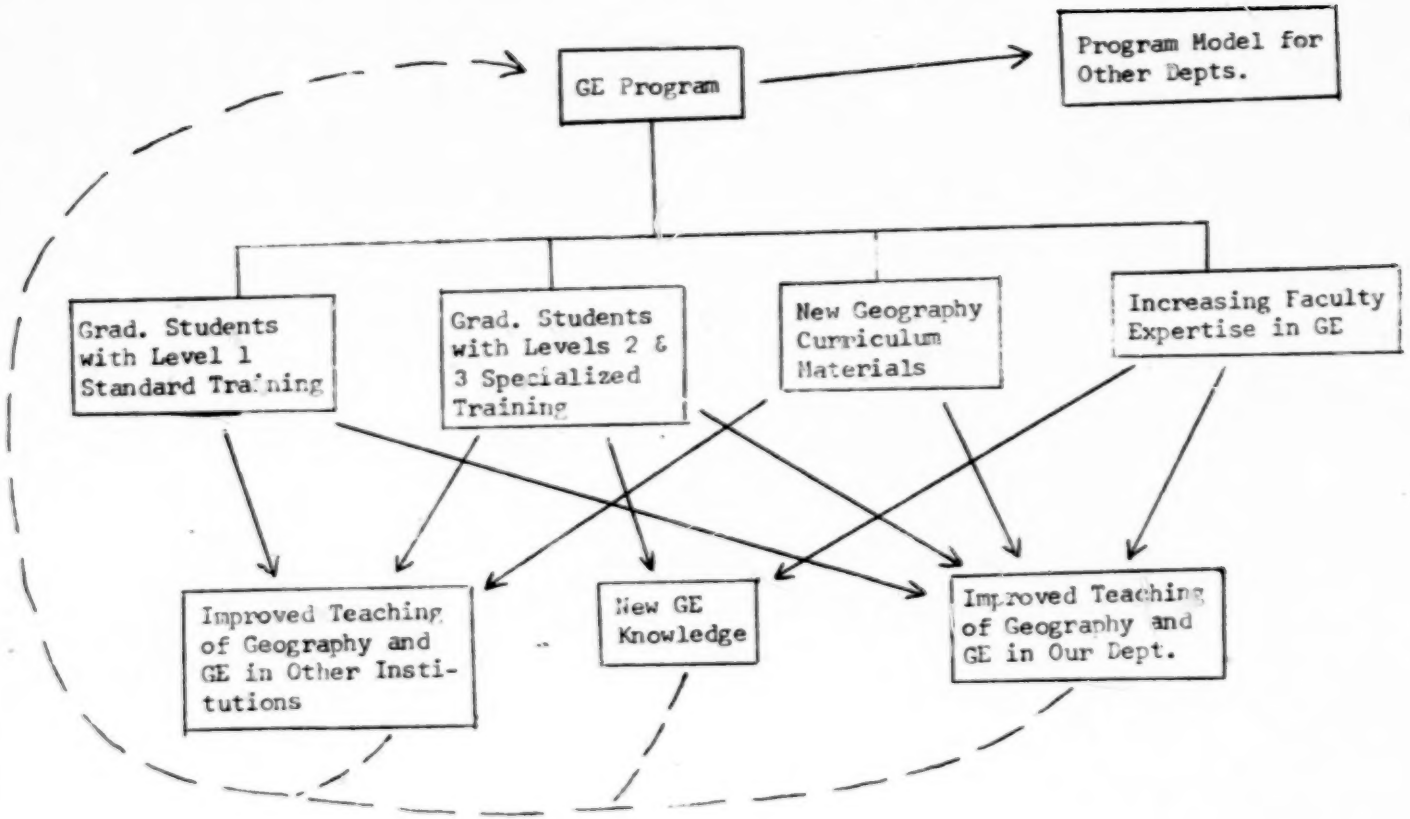

Level 3
5-10% of students; Training in GE for those doing diss.
10-15% of students to other diss. specialties, but offering GE as 1 of 3 specialties.
Level 2
20% of students; Training in GE for students planning to teach GE among other specialties.
80% of students to other specialties
Level 1
80% of students; Standard training in GE for those planning teaching careers.
20% of students with non-teaching goals.
Level 0
All entering students; 501 intro to Dept. specialties incl. GE.

FIGURE 5

HYPOTHETICAL YIELDS OF GE PROGRAM


GE Program
Program Model for Other Depts.
Grad. Students with Level 1 Standard Training
Grad. Students with Levels 2 & 3 Specialized Training
New Geography Curriculum Materials
Increasing Faculty Expertise in GE
Improved Teaching of Geography and GE in Other Institutions
New GE Knowledge
Improved Teaching of Geography and GE in Our Dept.

move from beginner to professional status. The activities reflect the philosophy of individualization, i.e., no single set or sequence of activities will be prescribed for all students--it is likely that no two students will follow precisely the same program. An activity may be directed at a single training dimension, e.g., the Cumulative GE Program Folio is designed primarily for the "Self-Evaluation" dimension, while another activity may be appropriate for perhaps four or five dimensions. As previously mentioned, a student's program must be comprised of experiences, both theoretical and practical, that prepare him in all six training dimensions (see Summary Figure 6).

a. Cumulative GE Program Folio

Each student is expected to maintain an up-to-date Cumulative GE Program Folio, the purposes of which are: (1) to provide the Department with detailed written documentation by both student and faculty of the student's objectives, experiences, performance, and progress through the program; (2) to formalize the idea that judgments and evaluations of the student's work should be documented by both the student and the faculty and subject to critical review, rather than taking the form of or being dependent on veiled impressions and surreptitious remarks; (3) to formalize and practice systematic self-evaluation --the principal device employed by the person who is concerned with his professional development; (4) to legitimize and encourage the Department's consistent use of and reliance on systematic evidence regarding teaching competency as an important element upon which recommendations for academic positions are made; and (5) to aid the GE Program Committee and outside program evaluators in their assessments of the effectiveness of the program.

b. Geography 501: Seminar in Geographic Problems

This course serves to introduce new graduate students to the interests and resources of the Department. It also is an early evaluation and diagnostic device, the Department's equivalent of the preliminary exam required by the Graduate School. Offered each fall semester for 3 credits, it is required of all entering graduate students. The graduate faculty, working in special interest teams of 2 to 4 each, present the Department's specialties in about five 2-3 week units of the course. One of these units is an orientation to the GE program. The student in 501 chooses 4 of the 5 course units to work on. Thus,

those students choosing the GE unit will be introduced to the objectives, procedures, philosophy, and opportunities of the program. Also, discussion can begin about the function, role, and contributions of the Teaching Assistant, since a number of 501 students will simultaneously be TAs for the first time. Geography 501 is designed to serve the proposed program at Level 0.

c. Occasional Class Observation

The program seeks to develop a departmental pattern of informal and frequent class observation, one which establishes a positive and non-threatening atmosphere for interchange (the observed and the observer) concerning teaching improvement. Such a pattern might evolve by acceptance of the rule of thumb that any graduate student may, without hesitation or prior formalities sit in to observe any teacher's (student or professor) class at any time. Similarly, any professor may observe any class at any time. While sound judgments about overall teaching effectiveness cannot be based solely on occasional class observation, it is likely that from such experiences the graduate student will gain greater understanding of divers approaches to teaching. This, in turn, can help him to enlarge his range of choice of alternative teaching roles, strategies, styles, and philosophies. For this reason, students at all Levels of the program (as part of their practicum, but without formal academic credit) will be encouraged to make occasional class observations. At Level 1 these will largely be limited to classes offered within the Department. In addition, students at Levels 2 and 3 will be asked to observe classes in other departments on campus as well as in local schools. Knowledge of teaching and learning at the pre-college level is particularly relevant to the GE specialist, since he should understand better than the average college teacher the entire educational system; he must see the relationships between the schools and colleges. And since some very creative teaching can be observed in the schools, the student will get useful ideas that he can appropriately modify for the college level. Students making occasional class observations at all Levels will be expected to write assessments of their learnings from these experiences and include these reports in their cumulative folios. Whenever it is mutually convenient to the teacher and student, learning will be enhanced by consultation, e.g., to clarify for the student the teacher's objectives, his rationale

for doing what he did, and the like.

d. Geographic Education Lab

The Geographic Education Laboratory (GE Lab) is both a place and a process. It is located in the department to increase the prospects of convenient interchange about teaching. It is a place to which students and teachers may repair to engage in the process of problem-solving in geographic education. Analogous to a cartography lab or a computer center, it is the information, production, and logistical center of the GE program. As such, it houses books, journals, curriculum materials, catalogues, files, supplies and equipment. It provides space and expertise for working on curriculum materials development for departmental courses, a place where students and faculty hold consultations and make plans about teaching. The GE Lab Coordinators, advanced graduate students, manage the Lab's activities. Coordinators channel people with problems and questions to appropriate resources, disseminate information, arrange presentations of new ideas for the benefit of students and faculty, maintain liaison with other similarly oriented activities both on the campus and across the nation. The GE Lab aims to serve the department's experimenting teachers, whether graduate assistants or professors, e.g., by arranging videotaping of classes, preparing innovative classroom materials, scheduling special orientations, meetings, and presentations for TAs, researching questions such as might be related to the design of evaluation devices, and helping teachers design, develop, implement, and evaluate new courses and curriculum materials. Students and teachers may use the GE Lab as frequently as needed, in all Levels of the program.

e. Geography 605: Seminar in Geographic Education

This one-semester graduate seminar, carrying 3 credits, surveys and critiques ideas from education, psychology, philosophy, and geography related to teaching and learning. In the GE program, Geography 605 is designed to provide the student at Level 1 with a basic introduction to the theoretical and practical aspects of geographic education. The student is expected to learn to think about the structural nature of the educational process, how scientific analysis can be applied to that process, and what procedures may be appropriate.

The objective is to equip the students to begin to operate in a problem-solving mode in relation to teaching--to see themselves as persons beginning to learn to be teachers researching teaching, primarily as a systematic means of improving the quality of their own geography teaching. It is this idea which underlies the entire GE program; students in the program are expected to demonstrate progressively their knowledge and skill to operate in this mode. The student in 605 is expected to enter in his folio a detailed, written self-evaluation of his 605 experience, and the professor also provides a written evaluation of the student's work in the course for inclusion in the folio.

f. Courses Outside the Department

For students choosing to specialize in GE (Levels 2 and 3), the program suggests to the student appropriate courses outside the department, e.g., in education, statistics, psychology, philosophy, etc., in order to extend the ideas and practices introduced in 605. The following list is merely suggestive, rather than exhaustive, of some courses available:

Educ 501. The Student in Higher Education.
Educ. 502. Curriculum in Higher Education.
Educ. 506. Human Learning.
Educ. 523. Contemporary Philosophies of Education.
Educ. 525. History of Educational Thought.
Educ. 560. Simulation Games for Social Studies.
Educ. 576. College Teaching and Learning.
Educ. 593. History and Philosophy of Modern Education.
Educ. 604-605. Experimental Design and Analysis I and II.

g. Class Intern

The Class Intern experience, a component of Level 1 training, is intended only for those students who have little or no teaching experience. The Intern may arrange to receive academic credit under an existing independent study number (Geog. 599) for continuous monitoring, probably during his first graduate semester, of one of the department's four introductory courses. This experience is intended as the beginning component in the program's practicum progression.

If the entering student has had previous teaching experience, such as at the M.A. level or in public schools, it may be appropriate that he skip the Internship and begin his practicum at a higher level, e.g., the TAship. Every effort will be made to see that the Class Intern subsequently steps up to a TAship, preferably in the course where he/she served as an Intern. As a Class Intern, the student will have no direct teaching responsibilities. Rather, the task requires continuous monitoring of the teaching and learning in the class to understand the teacher's objectives, structuring of the course content, overall course design, modes of presentation, evaluation practices, student responsiveness, and the like. The Intern must consult frequently with the teacher. As part of his self-evaluation, the student will keep a written record of his learning as Class Intern, and this report is to be included in his cumulative folio. The course professor also provides, for the folio, a written report on the student's performance.

h. Geography 606: Experimental Teaching

Although not a formal course, the student is able to earn academic credit in Geography 606 while performing experimental teaching. Geography 606 is intended primarily for students specializing in GE (Levels 2 and 3), although the experience is open also to other qualified students. Geography 605 (Seminar in Geographic Education) and Level 1 practicum experiences will normally be prerequisites to 606. A wide variety of teaching and learning arrangements will be encouraged in 606. For example, a student might team-teach in an advanced undergraduate course in partnership with the course's professor, or two or more students might team-teach the entire course, under the guidance of the course's regular professor. Students enrolled in 606 must experiment with new course content or structures, new instructional objectives, new curriculum materials, evaluation devices, communication skills, etc. Geography 606 is not any single professor's course, but rather, the student wishing to use 606 might arrange a program with any one of several volunteer professors. The chosen course professor, if he agrees to the student's proposal (indeed, the professor himself might invite a student to prepare a proposal), will serve as consultant to the student(s) during the teaching experiment. The student must have acquired graduate-level content mastery in the particular subject prior to entering into

a 606 arrangement with that course. Systematic self-evaluation, including student opinion surveys, is expected and must be included in the student's folio, along with the professor's report. A 606 proposal must state carefully the desired goals of the experiment, the criteria by which to judge whether the goals have been met, the plan of implementation, and the methods by which results are to be compared with the desired goals.

i. The Teaching Assistantship

The TAship is a salaried position usually employing the graduate student as teacher in 2 or more lab or recitation sections of 20 to 30 students each, within the context of a large class under the overall supervision of a professor. In the GE program, the TAship is designed as a Level 1 or 2 practicum experience within the context of a systematic teacher-training program. The TA is expected to keep a careful written record, as self-evaluation, during the course of his TAship and present this as a report in his folio. If not already familiar with teacher evaluation procedures, he should seek expert guidance. The record should include results of systematic student opinion sampling of his teaching effectiveness. Similarly, the professor with whom he is teaching should include in the student's folio his own written comments on the progress of the TA. The TA and the course professor must consult frequently and regularly, and the TA should avail himself of the resources offered by the GE Lab, such as special presentations on teaching or discussions about the TA role.

j. The Teaching Associateship

The Teaching Associateship, at Levels 2 or 3, is the next step above the TAship in the program's progressive practicum; salary level is higher than for the TAship, and the graduate student has full responsibility for conducting a course. Should he have TAs helping him, he is also responsible for evaluating, guiding, and consulting with them on a frequent and regularly scheduled basis. Similar to the TA, the Teaching Associate should keep a detailed, written self-evaluation, including student opinion, to be included in his folio. Also, the Teaching Associate must choose a professor with whom he would like to consult about the experience. The chosen consulting professor will provide written comments for the Teaching Associate's folio only if requested to do so by the

student. The latter point is a recognition of the Teaching Associate's advanced standing--just as a professional, he chooses his own consultants and referees to write recommendations for him.

k. Course Monitor

The names of advanced graduate students specializing in GE (Level 3), along with a statement of their individual area(s) of expertise, will be identified to the Department as potential Course Monitors. Areas of expertise might be include course design, development and testing of behavioral objectives, sensitivity and communication skills, teaching-learning strategies such as self-paced study or simulation-gaming, evaluation procedures, new curriculum materials, and the like. The Course Monitor will be sufficiently skilled to serve as a professional resource person to a Department teacher who wishes to carry out a systematic investigation of teaching and learning or develop some new component(s) or approach(es) in one or more of his courses. Thus, the potential Course Monitors will be available to the Department as a constituted resources pool for the improvement of instruction. Of course, as a Course Monitor the student will have the opportunity to practice being a professional resource person in his specialty. The Course Monitor arrangement must obviously be a mutual agreement. A student will normally be invited by a professor to become his Course Monitor; in some cases, however, the student may choose to initiate the arrangement in order to carry out (e.g., for a dissertation) a special investigation. The Course Monitor experience may, if appropriate, carry academic credit under Independent Study or Dissertation. In any case, the student will be expected to provide a detailed, written self-evaluation of the experience for inclusion in his folio.

l. Interpersonal Communications Training

To be effective, the GE program must achieve a high degree of interpersonal responsiveness among students and faculty, and interpersonal communications training is therefore one of the more crucial components of the program. What must evolve is a department ethos of mutual support and trust, of open, sensitive and honest criticism, of group purposiveness as well as sensitivity to individual needs, attitudes, values, and feelings, since we wish our students to learn to teach in this spirit.

In order to accomplish this, those customary status relations that impede good teaching and learning must be dissolved. The literature in educational psychology supports the assertion that an atmosphere of relaxed and personal interchange between students and faculty, rather than of status and authority relationships, is the one which is most conducive to complex learning. (E.g., J. C. Gaff and R. C. Wilson, "The Teaching Environment," AAUP Bulletin, Winter 1971, pp. 483, 484, 486.)

Interpersonal sensitivity must of course be constantly practiced by all persons at all stages of the program. Further, since as geographers we have not received formal training in this area, we will try to involve outside professionals to assist in this dimension. The program offers interpersonal communications workshops, retreats, etc., for interested students and faculty (these to begin in Geography 501).

m. Summary of Activities

Figure 6 summarizes GE training dimensions for which the foregoing GE activities are primarily designed, by training levels. Not included in this figure, but assumed, is that training dimension 1, Content Mastery, is served by all other graduate work in and beyond the Department at all levels of training. So too, is dimension 6, Professionalization/Socialization. Also, it is assumed that GE training Levels 2 and 3 will include, where appropriate, courses outside the Department, e.g., statistics, psychology, education, philosophy, as well as contacts with workshops, colloquia, and the like given by local organizations such as the Center for Education in the Social Sciences. The student should consult with the GE Program Director about appropriate courses and activities outside the Department of Geography and keep abreast of opportunities through the GE Lab.

4. INSTITUTIONAL SETTING

The University of Colorado Geography Department has a graduate faculty of 17. There were 56 graduate students in residence, 25 in the M.A. program and 31 in the Ph.D. program in 1972-73.

There are a number of institutions, allied with the University of Colorado or located in Boulder, that are oriented toward education or research in education--e.g., Social Science Education Consortium, Center for Education in the

Figure 6

Summary

GE Training Dimensions	GE Activities, by Training Levels*			
	0	1	2	3
Content Mastery	b	g,i	h,i,j	h,j
Course Design	b	d,e,g	d,f,h,j	d,f,h,j,k
Management of Learning Skills	b	c,d,e, g,i	c,d,f, h,i,j	c,d,f,h,j,k
Interpersonal Communications	b,l	c,d,e, g,i,l	c,d,f,h, i,j,l	c,d,f,h,j,k, l
Self-Evaluation	b	a,d,e, g,i,l	a,d,f,h, i,j,l	a,d,f,h,j,k, l
Professionalization/ Socialization	b	c,d,e	c,d,f,l	c,d,f,k,l

*Letters correspond to the lettered activities described in section 3:

a. Folio
b. Geography 501
c. Observer
d. GE Lab
e. Geography 605
f. Outside courses
g. Intern
h. Geography 606
i. Teaching Assistant
j. Teaching Associate
k. Course Monitor
l. Interpersonal Communications Training

Social Sciences, Education Resources Information Center, Biological Science Curriculum Study Committee, Earth Science Curriculum Project, personnel fror the High School Geography Project, Mountain View Center for Environmental Education. These groups provide a concentration of persons experienced in the development of new curriculum materials and new approaches to teaching, and this reservoir of expertise will be drawn upon to help carry out the purposes of this program.